

Canberra's Innovation Renaissance: An Ecosystem Model for the Australia's Future

John H Howard, 1 April 2025

Introduction

Canberra, Australia's capital city, has over 466,000 residents and the country's most highly educated population. Canberra is the broader Capital Region hub, with a population approaching 750,000. This includes Queanbeyan, Yass Valley, and other nearby NSW LGAs.

With nearly half of Canberra's adult population holding a bachelor's degree or higher, the city consistently ranks as a leader in knowledge-intensive industries. The city is geographically compact but highly connected, with strong infrastructure links to Sydney and a strategic position within the Canberra region, encompassing parts of southern New South Wales.

Its economic base has historically been dominated by public sector employment, given its role as the seat of the federal government, but since the early 2000s, concerted efforts have been made to diversify the economy. The Government was also concerned that, despite the ACT having the highest per capita R&D spending in Australia, very little was commercialised in the Territory.

Over the past 15 years, Canberra has transformed from a city largely reliant on public sector employment to an innovation-driven economy that fosters high-tech industries, research commercialisation, and entrepreneurial ventures.

The ACT Government, in partnership with universities, public research organisations, and the private sector, has played a crucial role in shaping this transition, carefully crafting policies and initiatives that have laid the foundation for a dynamic innovation ecosystem.

Between 2011 and 2021, census data show

- The proportion of the workforce in public administration and defence fell from 32.7% to 29.8%, while the proportion in professional, scientific, and technical services increased from 9.8% to 11.5%.
- In 2021, 71.4% of persons aged 15 years and over held a post-school qualification (compared to 64.9% in 2011). Of these, 14.2% held a postgraduate degree (8.8% in 2011), and 24.2% held a bachelor's degree (21.3%).
- Qualifications were concentrated in STEM fields (27.0%), health (8.7%), management and commerce (20.0%), and society and culture (20.1%), pointing to a balance across fields of education.
- In 2021, the proportion of persons aged 15 years working as professionals was 31.4% (29.7% in 2011), as managers 17.9 % (up from 15.8%), and as clerical and administrative workers 14.5% (down from 19.2%).

Building the Ecosystem: 2001 to 2008

An early precursor to Canberra's startup and business incubation movement was Epicorp, a business incubator and scale-up company established with funding from the Commonwealth's Building IT Strengths Program. Operating from 2001, Epicorp provided much-needed infrastructure, mentorship, and investment readiness support for emerging technology ventures in Canberra.

Epicorp made significant investments in Cohda Wireless, Locata, Windlab, Simmersion, and Mediaware International

Epicorp eventually ceased its incubation activities, but the returns from its investments have precipitated several innovation ecosystem support functions, which have included founding Lighthouse Innovations, developing an early stage and growth venture debt facility, and more recently, providing seed funding for a new ACT Venture Capital Fund—Activate Capital.

National ICT Australia (NICTA) was established in Canberra in 2002 as Australia's Centre of Excellence in Information and Communications Technology Research and played a significant role in the region's innovation landscape. With substantial funding from the Federal and ACT Governments, NICTA's Canberra Research Laboratory fostered cutting-edge research in computer vision, optimisation, machine learning, and software systems.

NICTA contributed to the ecosystem by translating research into commercial outcomes, spinning out numerous startups, and developing skilled ICT researchers and engineers. Its presence in Canberra strengthened connections between academic research and industry applications, particularly cybersecurity and data analytics.

NICTA shared important parallels with Germany's Fraunhofer Institutes in the ICT sector, though operating at a different scale and with a distinct funding structure. Both focused on applied research with strong industry connections. While the integration into CSIRO provided stability and access to CSIRO's established infrastructure, NICTA's more agile, independent structure might have allowed for faster adaptation to the current rapidly evolving AI landscape.

In 2016, NICTA merged with CSIRO's digital research unit to form **Data61**, continuing its legacy of digital innovation and research excellence in the Territory.

The **ACT Knowledge Fund** operated between 2003 and 2006., with an initial allocation of \$1.5 million, increasing to \$13.1 million. The Fund accelerated the commercialisation of research and development activities within the Territory, supporting projects with commercial promise and potential for regional economic diversification.

The Fund facilitated collaboration between the business sector and research institutions, funding proof-of-concept development, prototype creation, and early commercialisation activities. This initiative complemented other funding mechanisms in the ecosystem and helped bridge the critical gap between research outputs and commercial applications.

A substantial proportion of proof-of-concept funding was allocated to the ANU or companies associated with or linked to the university. Although the Fund ceased operation in 2006, an evaluation indicated that it had successfully created value for companies and the ACT community.

The **Canberra Business Development Fund (CBDF)** was an early-stage venture capital fund set up in 2005 by the ACT Government and managed by **Capital Venture Partners** to invest in technology companies emerging from Canberra's research institutions, particularly those with strong intellectual property and commercial potential. CBDF was one of the earlier backers of ANU Spinout **Seeing Machines**. CBDF was also an early investor in **Instaclustr** and **Liquid Instruments**. It also backed the CSIRO spinout, **The Healthy Grain/Barley Max**.

A pivotal development was the establishment of **ANU Connect Ventures** in 2005, a collaboration between ANU and MTAA Super. With ACT Government support, ANU CV raised \$30M, which provided seed funding and follow-on investment in technology companies emerging from Canberra's research institutions, prioritising those with strong intellectual property and commercial potential. Investments included Epiaxis Therapeutics, Beta Therapeutics, Instaclustr, Interferex, Liquid Instruments and Seeing Machines

This period also witnessed the growth of local investment networks formed to connect angel investors with promising startups, while national venture capital firms increasingly took notice of Canberra-based opportunities. The **Capital Angels network**, established during this time,

brought together high-net-worth individuals interested in supporting early-stage ventures, further enriching the funding ecosystem.

Additionally, several Canberra startups successfully attracted investment from interstate and international venture capital sources, demonstrating the growing credibility of the region's innovation outputs.

Institutional Development and Research Commercialisation: 2008-2018

The **Australian National University (ANU)** and the **University of Canberra (UC)** took proactive steps to link research with commercialisation. An early collaborative initiative was the launch of **InnovationACT**, a student-run startup competition that encouraged university students and staff to develop entrepreneurial skills and commercialise innovative ideas.

InnovationACT provided participants with structured mentorship, workshops, and funding opportunities to support early-stage business ideas. The competition played a crucial role in cultivating Canberra's future founders and fostering a culture of student entrepreneurship, many of whom would go on to launch successful ventures within the broader ecosystem.

UNSW Canberra strengthened its presence in areas such as defence, space technology, and cybersecurity, and the **Canberra Institute of Technology (CIT)** also adapted its offerings to align with the evolving needs of a knowledge-based economy.

Epicorp's ICT Commercialisation Incubator became **Lighthouse Innovations** in 2008 as a public-private joint venture. It was established to provide focused support for startup technology-based businesses, particularly those in the ACT. In 2014, Lighthouse became fully independent and now serves clients around Australia.

The ACT Government's **Innovation Connect (ICON)** program commenced in 2008 to provide competitive grants of between \$5,000 and \$30,000 for proof of concept (e.g., developing a prototype or a market testing solution). ICON had been designed to assist companies that need support in the early stages of taking an innovative product or service to investment readiness or commercialisation.

The program has continued to this day and has played a very significant role in the development of the ecosystem by providing vital early-stage risk capital seeding for growth companies that have emerged over time.

Entry 29, a co-working space for startups and entrepreneurs, was founded by a handful of startup enthusiasts in 2012 and operated until 2018.

A significant milestone in this period was the formation of the **Canberra Innovation Network (CBRIN)** in 2014, which catalysed the city's startup ecosystem. Established through a collaborative effort between the ACT Government, major research institutions including ANU, UC, UNSW Canberra, CSIRO, and industry partners, CBRIN represented a new model for innovation support in innovation districts.

Its establishment signalled a shift in policy emphasis towards fostering entrepreneurship, supporting early-stage businesses, and facilitating collaboration between researchers and industry. CBRIN's physical innovation hub in the city centre became a vibrant meeting point for entrepreneurs, investors, researchers, and corporate innovators.

The Network's regular **First Wednesday Connect** events have emerged as a cornerstone of Canberra's innovation community, providing consistent opportunities for networking, collaboration, and knowledge sharing among diverse ecosystem participants. These monthly gatherings, alongside other workshops and programs have helped build entrepreneurial capacity and strengthen community connections.

Government programs administered through the Network, such as the *Innovation Connect* Grants and the **Griffin Accelerator**, provided crucial funding and mentorship to startups, resulting in dozens of success stories across diverse sectors, including technology, healthcare, and sustainability. By creating structured pathways for commercialising research and supporting founders, CBRIN helped transform Canberra's innovation landscape, creating hundreds of jobs and attracting significant investment to the region.

The **CBR Innovation Development Fund** was announced as part of the *Confident & Business Ready* strategy in May 2015 to continue with the Government's major policy of accelerating innovation to create wealth and jobs in Canberra. In 2016, the ANU and Hindmarsh Corporation launched **Significant Capital Ventures**, a new venture capital investment vehicle to drive innovation in Canberra and build investment links between business and research.

Mill House Ventures was established in 2016 as a social enterprise business advisory and investment intermediary. It aims to accelerate the business growth and impact of not-for-profit and for-profit social ventures. It operates from the University of Canberra.

Parallel to these developments, Canberra emerged as a national defence and cybersecurity innovation leader. The presence of key federal agencies and research expertise at ANU and UNSW Canberra positioned the city as a hub for cutting-edge technological advancements. By 2018, Canberra had established itself as a leader in areas such as artificial intelligence, data science, and quantum computing, setting the stage for further growth in these fields.

A notable success story during this period was **Instaclustr**, a Canberra-based startup that exemplified the potential of the local innovation ecosystem. Founded in 2013, Instaclustr developed a managed platform for open-source technologies like Apache Cassandra, Kafka, and Elasticsearch. The company received significant backing from ANU Connect Ventures as well as follow-on investment from Sydney and Melbourne venture capital firms.

Instaclustr's growth trajectory demonstrated how Canberra's research expertise, appropriate capital investment, and entrepreneurial support could create globally competitive technology ventures. By 2018, the company had expanded its client base internationally and established itself as a leader in the data infrastructure space.

In 2022, Instaclustr was acquired by **NetApp** for approximately USD\$500 million, one of the region's most significant technology exits and validating the venture capital model established during this crucial ecosystem-building period. Lithicon AS, spun out from ANU and UNSW, was also exited to a NASDAQ-listed company during this same period for USD 70 million.

Reposit Power, a Canberra-based energy technology company that pioneered grid-interactive energy storage systems, developed advanced software enabling homeowners with solar panels and batteries to participate in energy markets, creating a virtual power plant model. The company's GridCredits system allowed customers to sell stored energy back to the grid during peak demand periods, maximising economic returns while contributing to grid stability.

Beyond the high-tech and research-intensive industries, Canberra's innovation ecosystem has expanded into cultural and creative industries, particularly in film, television, and interactive entertainment. **Screen Canberra**, supported by government investment, was crucial in nurturing the local film and television sector, facilitating production incentives, training programs, and industry networking opportunities.

The **Institute for Interactive Entertainment** emerged as an early initiative to support the burgeoning video gaming industry, contributing to the development of several Canberra-based gaming studios. Over time, the city has seen the rise of independent film production houses and video game startups, strengthening Canberra's position as a creative innovation hub. These developments illustrate how Canberra's innovation ecosystem is not only driven by

science and technology but also by the intersection of creativity, digital media, and entrepreneurship.

Expansion and Maturation: 2018 to Present

Since 2018, Canberra's innovation ecosystem has undergone rapid expansion and maturation. The ACT Government has continued to invest in initiatives encouraging research commercialisation, with ANU launching the **ANU Software Innovation Institute** in 2020 to further bridge the gap between research and industry, and UC launching the Open Source Institute with foundation funding from InstaClustr.

In addition, the University of Canberra's **Health Innovation Hub** has fostered new collaborations in digital health and aged care, aligning with national priorities for medical technology development.

UNSW Canberra is developing a new precinct in the city that will feature industry-friendly facilities and space for co-location. This will support Canberra's defence and cybersecurity dominant industries, reinforcing Canberra's status as a cybersecurity hub supported by increased federal procurement and private sector investment. UNSW Canberra hosts Launch on Northbourne, a specialised multitiered security space for startups that develop defence, cyber and dual-use technologies.

Companies such as Windlab, EOS, and CEA Technologies have expanded operations, while new entrants have emerged, leveraging Canberra's expertise in national security. The space sector has also gained momentum, spurred by the establishment of the Australian Space Agency in 2018 and continued collaborations between Canberra-based firms and global space agencies.

During the period, the ANU, UC, CSIRO and UNSW Canberra spun out an unprecedented number of companies which include Liquid Instruments, Quantum Brilliance, Samsara, Nomad Atomics, Syenta, SkyKraft, Prism Neuro, SPLAT Maths, Nourish Ingredients, Vai Photonics, Forge Photonics, Flexegraph, Wildlife Drones, New Frontier Technologies, Thaum and Dragonfly Thinking just to name a few.

These companies have gone on to raise hundreds of millions of dollars in capital and employ hundreds of highly skilled, knowledge-intensive people across the city. ANU is Australia's powerhouse in quantum research, producing over 50% of Australia's research output in this future sector. It has translated some of this into the highest number of quantum spin-offs from any university in Australia.

Canberra has also positioned itself as a **leader in sustainability and cleantech**. The city achieved its 100% renewable energy target in 2020, attracting investment in hydrogen energy, circular economy initiatives, and low-emission transport solutions. Smart city initiatives have taken shape, integrating artificial intelligence and IoT technologies into urban planning to improve efficiency and sustainability.

Regional and international engagement has also become a key focus, with Canberra strengthening partnerships with regional innovation hubs across southern NSW. The ACT Government's **International Engagement Strategy (2020-2025)** has facilitated greater foreign direct investment in technology and research-driven industries, further integrating Canberra into the global innovation network.

Challenges and Future Directions

Despite its successes, Canberra's innovation ecosystem faces several challenges. Access to growth-stage capital remains a hurdle, with mid-tier startups struggling to secure the necessary investment to scale operations.

The Government recently issued a tender for a new venture capital fund, Activate Capital, which will commence operations later this year. This will provide some seed and early-stage capital but nowhere near enough to keep the deep tech companies such as the ones that have emerged over the past two decades in Canberra. Talent retention is another pressing issue, as Canberra's relatively small population limits its ability to sustain a steady pipeline of skilled professionals.

While defence and cybersecurity remain dominant sectors, there is a growing need to diversify into new areas such as medical technology, advanced manufacturing, and creative industries.

Stronger alignment with national policy frameworks is also necessary to fully capitalise on Canberra's strengths. While the city has benefited from Government-backed initiatives, a more coordinated effort between the ACT Government and federal innovation strategies would enhance funding opportunities and cross-sector collaboration.

A significant opportunity exists in the **knowledge-intensive corridor** that exists between UC, the AIS and the future new North Canberra Hospital, linked to CSIRO and ANU through the city capturing UNSW's new city campus, ADFA, and the creative arts precincts at Kingston and Dairy Flat through to the airport. This corridor has the potential to become a world-class innovation district over the coming decades – particularly as the Government continues to invest in transport infrastructure, the population grows, and the airport becomes more internationalised.

The corridor has a wealth of knowledge, innovation infrastructure, and capability worth several billion dollars, which is highly attractive to research and innovation-based industries. With similar challenges faced by Sydney's Tech Central, governance and a clear plan for the district's development will be key to the future economic prosperity of the nation's capital beyond its public sector roots.

Conclusion

Canberra's innovation ecosystem has undergone a remarkable transformation since 2008, evolving into a leading hub for research-driven economic growth. The city has started to better leverage its universities, Government agencies, and private sector partnerships to create an environment that fosters innovation and entrepreneurship.

As Canberra looks to the future, continued investment in digital technologies, sustainability, and industry diversification will be essential to maintaining momentum. Addressing challenges related to capital access, talent retention, and policy coordination will further strengthen Canberra's position as a global innovation leader.

Other cities and regions can draw valuable lessons from Canberra's experience in fostering a resilient and high-performing innovation ecosystem. One key takeaway is the importance of leveraging existing institutional strengths, particularly universities and research organisations, as catalysts for economic development.

The collaborative model adopted in Canberra, where Government, industry, and academia work closely together, offers a blueprint for other cities seeking to build a sustainable innovation culture. This blueprint will need to evolve to capture the advantages of what a truly coordinated innovation district can bring.

Furthermore, the strategic focus on key industries, such as defence, cybersecurity, space, quantum and clean technology, has allowed Canberra to develop areas of competitive advantage. Other regions can benefit from identifying their own distinctive strengths and aligning policy support to nurture those sectors. Canberra's success in securing international partnerships and investment also highlights the importance of global connectivity in driving innovation-led growth.

Additionally, Canberra's ability to foster startups and high-growth firms through targeted funding programs demonstrates the value of early-stage investment and ecosystem support. Cities looking to enhance their entrepreneurial landscape should consider mechanisms for seed funding, mentoring, and accelerator programs that provide structured pathways for business growth.

Finally, Canberra's leadership in smart city initiatives and sustainability underscores the potential for urban centres to integrate technological innovation into city planning. By prioritising investments in digital infrastructure, renewable energy, and urban resilience, other regions can position themselves for long-term economic and environmental benefits.

The Canberra experience proves that with the right mix of policy foresight, institutional collaboration, and sustained investment, cities of any size can build thriving innovation ecosystems that drive economic prosperity and social progress.

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